

Acc. Nr: **AT0107996** - Abstracting Service:
CHEMICAL ABST. 6-70

Ref. Code:

54R0020

124952t Effect of the magnetic treatment of water on the concentration of dissolved oxygen. Klassen, V. I.; Shaleev, R. Sh.; Khazhinskaya, G. N.; Koryukin, B. M.; Stetskaya, S. A. (Inst. Goryuch. Iskop., Moscow, USSR). *Dokl. Akad. Nauk SSSR* 1970, 190(6), 1391-2 [Phys Chem] (Russ). The effect of passing H₂O through 10 magnetic fields on the effective concn. of O, Co, in soln. was detd. After 5 min, C_p increased. This increase was most pronounced when the initial Co was lowered by bubbling N through the H₂O. Increasing the period between the end of the magnetic treatment and the addn. of pyrogallol lowered C_p. GBJR

REEL/FAME
19891576

18
K2

USSR

UDC: 532

OSYPENKO, V. P., STETS'KIV, O. P., PANASYUK, P. V.

"Thermoelectromotive Force of Alloys in the Indium-Zinc System in the Molten State and on the Crystal-Melt Interface"

Visnyk L'viv. un-tu. ser. fiz. (L'vov University Herald. Physics Series), 1971, vyp. 6(14), pp 60-63, 110 (from RZh-Fizika, No 6, Jun 72, Abstract No 6Yel61)

Translation: An investigation is made of the thermoelectromotive force of alloys in the In-Zn system in the melting region and in the molten state. It is found that alloys with a high percent concentration of zinc have positive thermoelectromotive force, while indium-rich alloys have negative thermo-emf. Authors' abstract.

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- 58 -

USSR

UDC: 621.396.69:621.318.1:549.731.1

PUZAKOV, A. P., STETSKO, K. V.

"Some Results of an Investigation of Hot-Pressed Ferrite Inserts in SHF Devices of High Power Level"

Elektron. tekhnika. Nauchno-tekhn. sb. Ferrit. tekhn. (Electronic Technology. Scientific and Technical Collection. Ferrite Technology), 1970, vyp. 1 (23), pp 7-10 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12V398)

Translation: Data are given from an experimental study of Y-circulators of high power level with ferrite inserts made by the standard oxide technique and the hot pressing method. It is shown that when the basic parameters inherent in devices with ordinary normalized ferrites are maintained, high levels of threshold power are reached in circulators with hot-pressed ferrite inserts made from a mechanically pulverized charge with subsequent oxygen annealing. Resumé.

1/1

USSR

UDC 616.71-001.5-003.93-092.9-02:615.847.8

DEGEN, I. L., and STETSULA, V. I., Kiev Institute of Orthopedics

"Consolidation of Bone Fragments in a Constant Magnetic Field"

Moscow, Ortopediya, Travmetologiya i Protezirovaniye, No 9, 1971, pp 45-48

Abstract: The dynamics of bone (antebrachium) regeneration in 36 rats exposed 15 min a day for 20 days to a constant magnetic field at an intensity of 500 oersteds were studied. Twenty-four hours after the fracture, edema was much less pronounced than in the control while the phagocytic reaction was intense. On day 7 the periosteal reaction was less widespread in the experimental animals and smaller areas of fibrous-cartilaginous callus formed between the fragments. Between days 14 and 30 the ossification of fibrous tissue connecting the fragments was somewhat more advanced than in the control. Complete union set in by day 90, reconstruction of callus was more rapid and regeneration of the medullary canal was more pronounced. Despite the small number of experimental animals and the apparent lack of similar studies, the results are sufficiently encouraging to warrant, in the author's opinion, cautious clinical trials of a constant magnetic field to prevent posttraumatic trauma and relieve pain.

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- 91 -

1/2 020
UNCLASSIFIED
PROCESSING DATE--3000:70
TITLE--ELECTRICAL PROPERTIES OF SURFACE BARRIER P-N JUNCTIONS ON HIGH
RESISTANCE CADMIUM TELLURIDE -U-
AUTHOR--(05)-BOGOMAZOV, A.P., KARPENKO, V.P., KASHERININOV, P.G., MATVEYEV,
STETSYUK, R.S.
COUNTRY OF INFO--USSR
SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(4), 813-14
DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--CADMIUM TELLURIDE, ELECTRIC PROPERTY, PN JUNCTION, ELECTRIC
FIELD, VOLT AMPERE CHARACTERISTIC

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1998/0932

STEP NO--UR/0449/70/004/004/0813/0814

CIRC ACCESSION NO--AP0121534

UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0121534

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. DARK CURRENT VOLTAGE

CHARACTERISTICS OF SURFACE BARRIER P-N JUNCTIONS ON HIGH RESISTANCE CDTE ARE QUADRATIC AND MORE INFLUENCED BY THE ELEC. FIELD IN THE BASE AREA THAN BY THE RESISTANCE OF THE JUNCTION ITSELF. THE LATTER BECOMES IMPORTANT WHEN THE BASE RESISTIVITY IS REDUCED BY ILLUMINATION; IN THIS CASE, THE CURRENT VOLTAGE CURVE IS EXPONENTIAL.

FACILITY: FIZ.

TEKH. INST. IM. IOFFE, LENINGRAD, USSR.

UNCLASSIFIED

Acc. Nr:

AP0040885

S

Ref. Code:

UR 0103

PRIMARY SOURCE: Avtomatika i Telemekhanika, 1970, Nr 1, pp 159-169

NUMERICAL MODEL FOR ESTIMATION OF PARAMETERS
OF AUTOMATIC DATA PROCESSING SYSTEMS

Kotyuzhanskiy, G. A.; Nisnevich, L. B.; Stetsyura, G. G.;
Tint, L. S.; Epshteyn, V. L.

There is presented a description of a specialized numerical model for the estimation of the electronic computer parameters (its memory volume, its productivity) and the choice of the discipline of data processing in designing one-machine automatic systems of data processing, functioning in real time.

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REEL/FRAME
19750624

4.

UDC 624.07:534.1

USSR

STEVANOVICH, K. R.

"On Transverse Vibrations of a Beam Acted on by a System of Masses and Pulsating Forces Applied to It and Moving With Variable Velocity"

V sb. Asimptotich. i kachestven. metody v teorii nelineyn. kolebaniy
(Asymptotic and Qualitative Methods in the Theory of Nonlinear Vibrations --
Collection of Works), Kiev, 1971, pp 180-194 (from RZh-Mekhanika, No 8,
Aug 72, Abstract No 8V202)

Translation: Vibrations of a beam are discussed for small values of the masses of loads, sinusoidal loads applied to them, and slow velocities of their uniformly decelerated and uniformly accelerated motion. The inertia of the rotation of the loads and the transverse cross section of the beam are neglected and the shift in the beam material is not taken into account. An expression for bends in the beam were selected in the form of the product of three functions: the known function of the coordinates in the form of a half-sinusoidal wave (i.e., only the first shape of the vibrations was taken), the amplitude function of the time and the harmonic function of the time. The latter functions are determined from a system of equations of the first approximation which are a consequence of the energy


1/2

USSR

STEVANOVICH, K. R., Asimptotich. i kachestven. metody v teorii nelineyn. kolebaniy, Kiev, 1971, pp 180-194

interpretation of the asymptotic method of Krylov-Bogolyubov. The amplitude function is graphed as a function of time for different combinations of the motion of two loads as examples. Conclusions are drawn concerning dangerous combinations of the motion of the masses from an analysis of the curves obtained. A. S. Yerokhin.

USSR

 [621.165 + 621.438]-592.62(088.8)

POLIKOV, V. I., SHEYTAK, A. A., STEVLEVSKIY, A. A., KOMAROV, V. I.

"Hydraulic Single-Disk Brake"

USSR Authors' Certificate No. 244667, Filed 12/02/68, Published 9/10/69
(translated from Referativnyy Zhurnal Turbostroyeniye, No. 4, 1970, Abstract
No. 4.49.122P, unsigned)

Translation: A single-disk brake is patented for the testing of high speed, low power turbines containing a shaft mounted on ball bearings in a rotating body with a cantilever mounted brake disk and covers rigidly mounted on the body with jaws forming a gap around the ends of the disk for the working fluid. In order to test the high-speed turbines over a broad range of operating modes, the brake disk is changeable, and a circular disk insert is placed between the jaws. An aperture located on the axis of rotation is placed in the cover in order to assure stable operation.

1/1

USSR

UDC 539.374

STEYN, D.

"Microdeformation From the Aspect of Dislocation Dynamics"

V sb. Mikroplastichnost' (Microplasticity -- Collection of Works), Moscow, "Metallurgiya", 1972, pp 117-129 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3V522)

Translation: It is shown that microplastic deformation, just as macroplastic deformation, depends on the dynamic properties of dislocations. Equations are given relating the rate of plastic deformation with the dynamic properties of dislocations. Stress-deformation curves for mono- and pseudopolycrystals can be calculated on the basis of the equations of dislocation dynamics. 18 ref. Author's abstract.

1/1

USSR

PAULAUSKAS, V. and STEYSHUNAS, S.

"The Rate of Convergence of the Distribution of the Maximum of Sequential Sums of Independent, Variously Distributed Random Vectors to the Limit Rule"

Lit. Mat. Sb. [Lithuanian Mathematics Journal], 1973, Vol 13, No 2, pp 139-147 (Translated from Referativnyy Zhurnal Kibernetika, No 10, 1973, Abstract No 10V32)

Translation: This work presents multidimensional analogues of several theorems of V. B. Nevzorov (RZHMt, 1971, 12V49; 1972, 7V29) concerning the rate of convergence of a distribution of the maximum of sequential sums to the limit rule. The first three theorems give the rate of convergence as the distribution of the maximum approaches the normal rule, while the fourth theorem studies the case when identically distributed components belong to the areas of attraction of a k-dimensional symmetrical stable rule with index $1 < \alpha \leq 2$. Theorems 2 and 4 are new for the one-dimensional case as well.

Author's view

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STIKHAREV, A. A.

INCREASING THE FUNCTIONAL CAPACITY OF THE NORMAL CARDIOVASCULAR SYSTEM BY THE REGULATED COOLING METHOD

UDC 616.12-02:612.014.4-063]-085.832.9

SPRS 56030
18 May 72

Article by A. A. Stikharev, Moscow, Kommissarskaya St. 10, 119121, USSR, April 1972, pp 30-35, submitted for publication 14 May 1971]

Abstract: Hemodynamic changes were investigated in four volunteer test subjects during cooling experiments at -20° for 20, 40, 60, 90 or 120 minutes. The heat deficit was 0.9, 1.3, 1.6, 2.0 and 2.4 Cal/Kg respectively. In the experiments the pulse rate decreased and the maximum, minimum and pulse pressures increased. The Kvas tolerance coefficient decreased. The ECG revealed changes typical of cholinergic reactions. Change from a horizontal to a vertical position brought about a lesser heart rate increase and a smaller change in the minimum and pulse pressures in the test subjects than in the controls. The level of cardiovascular response at first increased linearly with the heat deficit; however, in the fourth and fifth experimental runs it was very close to that in the third run. After warming the cardiovascular function reached the pretest values in all 5 experimental runs. These findings suggest that moderate cooling may be used to elevate the functional state of the cardiovascular system for a certain period of time.

It has been demonstrated in numerous investigations that such factors as hypokinesia, weightlessness, and others exert a negative effect primarily on the functional state of the cardiovascular system. One can observe tachycardia, a decrease in arterial pressure, a decrease in the tone of arterial and venous vessels, a decrease in the blood stroke and minute volumes, an increase in peripheral resistance to blood circulation, a change in the ZCG, etc. (P. V. Buyanov, et al.; V. S. Georgiyevskiy and V. M. Mikhaylov; A. V. Korobov, et al.; L. I. Kakurin; B. A. Korolev; N. Ye. Panferova, et al.; Graveline, and others).

1/2 026 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--THE CHOICE OF RATIONAL CONDITIONS OF TELEGAMMATHERAPY OF MALIGNANT
TUMORS OF THE NASOPHARYNX -U-
AUTHOR--(02)-STIOP, L.D., MELBART, I.I. S
COUNTRY OF INFO--USSR
SOURCE--MEDITSINSKAYA RADIOLOGIYA, 1970, VOL 15, NR 6, PP 22-29
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--TUMOR, GAMMA IRRADIATION, RADIATION DOSE, RESPIRATORY SYSTEM
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3002/1511 STEP NO--UR/0241/70/015/006/0022/0029
CIRC ACCESSION NO--AP0128906
UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--13NOV70

2/2 026

CIRC ACCESSION NO--AP0128906
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE AUTHORS SUMMARIZE THE FIRST EXPERIENCE OF TELEGAMMATHERAPY OF PATIENTS WITH MALIGNANT TUMORS OF THE NASOPHARYNX ON ROKUS AND LUCH APPARATUS. CLINICAL OBSERVATIONS AND DATA OF DOSIMETRIC INVESTIGATIONS GIVE GROUNDS TO RECOMMEND IN RESTRICTED HIGHLY RADIOSENSITIVE TUMORS IRRADIATION IN A DOSE OF 6000-6500 RAD FROM TWO CONTRALATERAL FIELDS; IN A MORE DISTRIBUTED NEOPLASTIC PROCESS OR LESSER RADIOSENSITIVITY OF TUMORS, FOCAL DOSES OF 7000-8000 RAD FROM 3-4 FIELDS, WITH THE DOSE FROM LATERAL FIELDS THREE TIMES GREATER THAN FROM ANTERIOR FIELDS. THERE WAS NOTED A SIGNIFICANT REDUCTION OF THE LOCAL AND GENERAL RADIATION REACTION IN GOOD IMMEDIATE EFFECTIVENESS OF THE TREATMENT IN COMPARISON WITH ROENTGENOTHERAPY. FACILITY:
OTDELENIYE DISTANTSIONNOY LUCHEVOY TERAPII, MOSKOVSKOGO
NAUCHNO-ISSLEDOVATEL'SKOGO ONKOLOGICHESKOGO INSTITUTA IM. P. A.
GERTSENA.

UNCLASSIFIED

1/2 024 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--MELTING OF ARGON AT HIGH TEMPERATURES -U-
AUTHOR--(04)-STISHOV, S.M., MAKARENKO, I.N., IVANOV, V.A., FEDOSIMOV, V.I.
COUNTRY OF INFO--USSR
SOURCE--JETP LETTERS (USA), VOL. 11, NO. 1, P. 22-5, JAN. 1970
DATE PUBLISHED---JAN70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--MELTING POINT, ARGON, HIGH TEMPERATURE EFFECT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3005/1768 STEP NO--US/0000/70/011/001/0022/0025
CIRC ACCESSION NO--AP0133673
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE---04DEC70

CIRC ACCESSION NO--AP0133673

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PRESENTS THE RESULTS OF MEASUREMENTS OF THE VOLUME OF ARGON IN THE MELTING REGION AT 291.6, 294.2, AND 322DEGREESK. IT IS FOUND THAT $\Delta V_{SUBM} - V_{SUBS}$, WHERE ΔV_{SUBM} IS THE CHANGE IN VOLUME OF MELTING AND V_{SUBS} IS THE VOLUME OF SOLID ARGON AT THE MELTING POINT, TENDS TO ZERO WHEN THE MELTING TEMPERATURE INCREASES. FACILITY: USSR ACAD. SGI.

UNCLASSIFIED

Acc. Nr.

AP0053898

Abstracting Service:
CHEMICAL ABST.

6-70

Ref. Code

UR0386

115059e High-temperature melting of argon. Stishov, S. M.; Makarenko, I. N.; Ivanov, V. A.; Fedosimov, V. I.
(Inst. Kristallogr., Moscow, USSR). *Pis'ma Zh. Eksp. Teor. Fiz.* 1970, 11(1), 22-5 (Russ). Pressure-vol. (V) isotherms of Ar were exptl. detd. in a piezometer filled at 2000 atm at 291.6, 294.2, and 322°K. Changes in V (ΔV) and entropy (ΔS) on melting decrease with increase in the m.p. (T_m); ΔS approaches a const. value of ~ 2.13 cal/degree mole and ΔV follows the law $\Delta V = \gamma(T_m - T_0)^{-1/3}$ (γ and T_0 are const.).

Karel A. Hlavaty

C.K.

REEL/FRAME
19830975

18

USSR

UDC 621.039.562:62-522

IONAYTIS, R. R., STOBETSKIY, V. N.

"Hydraulics of the Control and Safety System of Nuclear Reactors"

Gidravlika SUZ yadernykh reaktorov (cf. English above), Moscow, Atomizdat, 1972, 188 pp, 111., 1 r., 20 kop. (from RZh-50. Yadernyye reaktory, No 11, Nov 72, Abstract No 11.50.59 K)

Translation: This book is a first attempt to present problems of the hydraulics of control and safety systems of nuclear reactors. Diagrams of hydraulic systems, devices, mechanisms and the results of experimental studies are discussed along with a calculation and a rational patterning of the flow chart of hydraulic elements. Various cases of the motion of the rods in the safety and control system, calculation techniques are given, and the results of specially compiled experimental studies of individual hydraulic devices, systems, and drives of safety and control systems are given. 47 111., 2 tables, 246 ref.

1/1

USSR

SERGIENKO, I. V., STOGNIY, A. A., MITROPAN, A. P.

"System for Automated Debugging of Programs for the Dnepr-2 Control Computer"

Sistema Avtomatizirovannoy Otladki Programm dlya UVS Dnepr-2 [English Version Above], Kiev, 1972, 170 pages (Translated from Referativnyy Zhurnal, Kibernetika, No 1, 1973, Abstract No 1 V819 K).

Translation: An automated debugging system for programs written in Autocoder as realized for the Dnepr-2 computer is described. Furthermore, a method is studied for developing an automated program debugging system written in input language in general.

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- 72 -

1/6 019 UNCLASSIFIED
TITLE--MARKS OF EXCELLENT ON MACHINE TESTS -U- PROCESSING DATE--20NOV70
AUTHOR--(02)--RUSOKHGVATSKIY, I., STOGNIY, A.
COUNTRY OF INFO--USSR
SOURCE--MGSCON, TEKNIKA MOLODEZHI, NO 1, 1970, PP 4-6
DATE PUBLISHED--70
SUBJECT AREAS--BEHAVIORAL AND SOCIAL SCIENCES, ELECTRONICS AND ELECTRICAL
ENGR.
TOPIC TAGS--COMPUTER TECHNOLOGY, COMPUTER LOGIC, COMPUTER
PROGRAMMING/(U)IR INDUSTRIAL CONTROL COMPUTER
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1995/0517 STEP NO--UR/0029/70/000/001/0004/0006
CIRC ACCESSION NO--AP0116163
UNCLASSIFIED

2/6 019
CIRC ACCESSION NO--AP0116163
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--20NOV70

ABSTRACT. AT FIRST, A SMALL DICTIONARY, SEVERAL HUNDRED WORDS, NOUNS AND VERBS, WAS INTRODUCED INTO THE ELECTRONIC COMPUTER. THEN, THOSE SAME WORDS WERE INTRODUCED IN VARIOUS COMBINATIONS, SOME OF THEM MADE SENSE AND OTHERS WERE NONSENSE: "MOTHER COOKS DINNER," "THE BARREL COOKS HONEY," "THE PLANT MAKES CARS," "THE ENGINEER DRAWS UP PLANS," "THE ENGINEER BUILDS A PLANT," "THE PLANT MAKES ENGINEERS". THE MACHINE WAS TOLD THEN WHAT CORRESPONDED TO REALITY AND WHAT DID NOT HAPPEN TO SO CORRESPOND. WHEN IT WAS THEN TOLD TO MAKE SENSE OF NEW COMBINATIONS OF WORDS, IT GENERALLY WAS SUCCESSFUL IN DETERMINING WHICH OF THEM DID MAKE SENSE. IF THE MACHINE COULD HAVE SORTED OUT ITS IMPRESSIONS, IT MIGHT HAVE TOLD US ABOUT THEM AS FOLLOWS: "I WILL REMEMBER THE FIRST LESSONS ON RECOGNIZING THE SENSE OF A SENTENCE. I READ THE TEXT SEVERAL TIMES AND PAID ATTENTION TO THE FACT THAT MANY THINGS WERE REPEATED. I WAS TOLD TO PAY ATTENTION TO THE WORD 'DOCTOR,' AND I REVIEWED ALL SENTENCES IN WHICH IT WAS USED. IT TURNED OUT THAT THE DOCTOR BEHAVES DIFFERENTLY IN DIFFERENT SENTENCES: FIRST HE 'EATS,' THEN HE 'COOKS DINNER,' THEN HE 'HEALS,' THEN HE SIMPLY 'STANDS'. I THEN READ THE SENTENCE 'THE TABLE STANDS' AND IMMEDIATELY UNDERSTAND THAT, WHEN THE TABLE DID THE SAME THING THE DOCTOR DID, IT WAS LIKE THE DOCTOR. BUT, WHEN I REPORTED THIS TO THE PROGRAMMER, HE OBSERVED THAT I SHOULD NOT 'HASTEN TO CONCLUSIONS'. "THUS, I UNDERSTOOD THAT A RESEMBLANCE CANNOT BE JUDGED ON THE BASIS OF A SINGLE WORD". "THEN I UNDERSTOOD THAT THERE ARE MORE ESSENTIAL DEFINITIONS BY WHICH TO JUDGE A RESEMBLANCE, AND THAT THERE ARE THOSE OF SECONDARY IMPORTANCE.

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PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0116163

ABSTRACT/EXTRACT--ONE OF THE VERY IMPORTANT DEFINITIONS FOR 'PERSON' I RECOGNIZED AS THE WORD 'SPEAK'. NEITHER A 'MACHINE TOOL' NOR A 'PLANT' NOR A 'TIGER' NOR A 'STREETCAR' COULD SPEAK, IN GENERAL, NO ONE EXCEPT A PERSON. I KNEW THAT A PERSON COULD BE CALLED 'DOCTOR,' 'ENGINEER,' 'PETYA,' 'PETR IVANOVICH,' 'CHONG LU,' 'GRAMAPUTER,' AND MANY OTHER NAMES. AND THEN I RECEIVED A NEW SENTENCE: 'THE RADIO IS LOUD'. I DECIDED THAT 'RADIO' WAS YET ANOTHER NAME FOR A PERSON, AS IT 'SPOKE' ('THE RADIO IS LOUD' IN RUSSIAN IS 'THE RADIO SPEAKS LOUDLY'). MOREOVER, THIS NAME SEEMED PRETTY TO ME, AND WHEN I WAS ASKED TO CONSTRUCT A SENTENCE ABOUT A PERSON, I DECIDED TO USE THE NEW NAME AND COMPOSED: 'THE RADIO EATS AT THE TABLE'. THIS CASE HELPED THE SCIENTISTS NOT ONLY TO DISCERN THE REASONS FOR THE MISTAKE, BUT ALSO TO GAIN INSIGHT INTO THE "BLACK BOX". BUT THERE ARE ALSO OTHER METHODS OF TEACHING A MACHINE TO RECOGNIZE THE SENSE OF SPEECH. ONE OF THESE IS ACTUALLY CALLED THE "LANGUAGE OF SENSE". LINKING THREADS AND SOMETHING IN COMMON CAN BE SOUGHT BETWEEN ENTIRELY DIFFERENT WORDS. FOR EXAMPLE, THE WORDS "FRIGATE," "CRUISER" AND "CUTTER" ARE MASCULINE GENDER, SECOND DECLENSION AND ALL OF THEM SIGNIFY SAILING OBJECTS. IN TERMS OF ITS SIZE, IT IS NO LARGER THAN A DESK, AND EACH SCIENTIFIC CO-WORKER AND RESEARCHER CAN INSTALL IT IN HIS OWN LABORATORY. ITS NAME IS MIR MACHINE FOR ENGINEERING CALCULATIONS (MASHINA DLYA INZHENERNYKH RASCHETOV). ITS LANGUAGE IS UNUSUAL. IN THE FIRST PLACE, THE CONTENT OF A PLETHORA OF CALCULATION TASKS CAN BE TRANSMITTED ON IT.

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4/6 019

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PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0116163

ABSTRACT/EXTRACT--IN THE SECOND PLACE, AN ENGINEER, EVEN ONE UNFAMILIAR WITH WORK ON ELECTRONIC DIGITAL COMPUTERS, CAN MASTER IT IN SEVERAL HOURS. THE FACT IS, MIR'S LANGUAGE IS SIMILAR TO THAT USED BY THE ENGINEER IN HIS OWN CALCULATIONS. BUT WHAT IS PARTICULARLY INTERESTING IS THE FACT THAT, USING A MIR, THE ENGINEER CAN ALSO COPE WITH THOSE TASKS WHOSE METHOD OF SOLUTION IS UNKNOWN TO HIM. LET US RECALL THAT THE MACHINE OPERATES USING THE PARTICULAR LANGUAGE THAT THE ENGINEER MAKING THE ASSIGNMENT USES. THIS PERMITS HIM NOT ONLY TO OBSERVE THE INTERMEDIATE RESULTS, BUT ALSO TO UNDERSTAND THE PLACE IN HIS COMPUTATION PLAN IN WHICH THE MIR IS OPERATING. THE MACHINE CAN ALWAYS BE STOPPED AND ORDERED TO GIVE THE FORMULA IT IS USING FOR THE CALCULATION. THE MIR INPUT AND OUTPUT IS SUPPLIED ON AN ELECTRIC TYPEWRITER. THE DATA MOVES IN THE FORM OF LETTERS, NUMBERS AND MATHEMATICAL SYMBOLS. IN FAMILIARIZING OURSELVES WITH THE INTERMEDIATE RESULTS, WE CAN ALTER OR ADD TO THE COMPUTATION PLAN. FOR THIS, IT IS SUFFICIENT TO TYPE THE WORD "SUBSTITUTE" AND, AFTER IT, A LIST OF THE CHANGES NEEDED. THE POSSIBILITY OF FOLLOWING THE COURSE OF THE CALCULATION AND INTERFERING IN THE OPERATING ROUTINE OF THE MACHINE GIVES US ENORMOUS ADVANTAGES OVER ORDINARY ELECTRONIC COMPUTER. IMAGINE A COMPUTER PLAYING CHECKERS. IT ANALYZES EVERY POSSIBLE MOVE, EXAMINES ALL THE ANSWERING MOVES OF THE OPPONENT, THEN EACH OF ITS SECOND MOVES IN RESPONSE TO EACH REPLY BY ITS OPPONENT, AND SO ON. THE ELECTRONIC BRAIN SORTS OUT ALL THE POSSIBLE VARIANTS OF PLAYING THE GAME AND SEPARATES OUT THOSE WHICH WILL LEAD TO VICTORY MOST QUICKLY.

UNCLASSIFIED

5/6 019

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0116163

ABSTRACT/EXTRACT--BUT, IN USING SUCH A METHOD, THE 10 PRIME40
POSSIBILITIES ON THE CHECKER BOARD MUST BE EXAMINED. AND THIS MEANS
THAT EVEN A MACHINE OF THE NEAR FUTURE, A MACHINE WHICH WILL BE CAPABLE
OF PERFORMING MANY BILLIONS OF OPERATIONS PER SECOND, WILL SPEND
BILLIONS OF YEARS ON A SINGLE GAME. THE ACTIONS OF AN ELECTRONIC
COMPUTER CHECKER PLAYER USING A HEURISTIC PROGRAM ARE DIFFERENT. THERE
IS A SORTING OF A RELATIVELY SMALL NUMBER OF VARIANTS, BUT THEY UNDERGO
PRELIMINARY CHECKING WITH CONSIDERATION OF AN ANALYSIS OF VARIOUS
POSITIONS ON THE BOARD. ONE OF THE MOST PUZZLING PROBLEMS FOR
GEOPHYSICISTS IS THE PRECISE DETERMINATION OF THE DEPTH OF PETROLEUM
BEARING SEAMS AND CLARIFYING THE FINE DIFFERENCES BETWEEN THEM AND WATER
BEARING SEAMS. IN THE TRAINING, WE TRIED TO DESCRIBE AS FULLY AS
POSSIBLE 45 PETROLEUM BEARING AND 45 WATER BEARING SEAMS. A TOTAL OF
ABOUT 100,000 CHARACTERISTICS WERE CHOSEN. AT FIRST, THE MACHINE
ANALYZED THEM AND SELECTED THE 100 MOST IMPORTANT. THEN IT CONSTRUCTED
A TEST TO RECOGNIZE 180 SEAMS UNKNOWN TO IT. IT DID NOT KNOW THAT THE
MOST EXPERIENCED GEOPHYSICISTS HAD MADE 17 ERRORS ON THIS SAME MATERIAL.
THE MACHINE MADE ONLY THREE ERRORS, AND IT HAD NOT EVEN BEEN THROUGH A
GEOPHYSICS COURSE AT ANY INSTITUTE, BUT HAD ONLY STUDIED THOSE EXAMPLES
GIVEN IT BY THE PEOPLE. HERE, THE ELECTRONIC COMPUTER DISCOVERED THE
PATTERNS WHICH HAD ESCAPED ITS ATTENTION AND TAUGHT ITS TEACHERS HOW TO
AVOID MAKING THE SAME MISTAKES IN THE FUTURE.

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6/6 019 UNCLASSIFIED PROCESSING DATE--20NOV70
CIRC ACCESSION NO--AP0116163
ABSTRACT/EXTRACT--IN ORDER FOR THE COMPUTER TO DEVELOP ITS CAPABILITIES
EVEN FURTHER, UP TO AND INCLUDING THE ABILITY TO DISCOVER NEW LAWS, IT
HAD TO BE SUPPLIED WITH VARIOUS MEASURING DEVICES AND EXECUTION
INSTALLATIONS. THEN NATURE ITSELF BECAME ITS TEACHER, FACILITY:
ORDER OF LENIN CYBERNETICS INSTITUTE OF THE UKRSSR ACADEMY OF SCIENCES.

UNCLASSIFIED

USSR

STOGNIY, A. A., REP'YEV, Yu. M.

"Experience in Development of a Standard Enterprise Automated Control System"

Kibernet. i Vychisl. Tekhn. Resp. Mezhved. Sb. [Cybernetics and Computer Technology. Republic Interdepartmental Collection], 1971, No 12, pp 19-40 (Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V665, by the authors).

Translation: Certain peculiarities of a standard enterprise automated control system are studied and recommendations are given for their use in the introduction of systems to enterprises.

1/1

USSR

UDC: 681.3

~~STOGNIY, A. A.~~, REP'YEV, Yu. M.

"Experience in Developing a Standard Automated Enterprise Management System"

Kiev, Kibernetika i Vychislitel'naya Tekhnika, Resp. mezhved. sb., No 12, 1971, pp 19-40

Abstract: The paper examines various aspects of automated enterprise management systems and presents recommendations for developing a standardized system of enterprise management. Such a management system is understood to mean an aggregate of procedures and technical facilities providing maximum efficiency in handling enterprise management based on using the methods of mathematical economics and data processing equipment including computer technology and facilities for gathering, recording, transmitting, and storing information. The problems and goals of the system are reviewed, together with basic principles of operation and their realization. Separate sections deal with various subsystems for controlling the technical preparation of production, managing main and auxiliary production, controlling the supply of technical materials, technical and economic planning, and also bookkeeping and accounting. Hardware and software are discussed.

1/1

USSR

UDC 582.232-119:576.8

KVASNIKOV, Ye. I., STOGNIY, I. P., TRAVCHUK, T. P., SHCHELOKOVA, I. F.,
KLYUSHNIKOVA, T. M., and GRINBERG, T. A., Institute of Microbiology and
Virology, Academy of Sciences Ukrainian SSR, Kiev

"Blue-Green Algae From the Kremenchug Reservoir as a Raw Material for
Growing Microorganisms"

Kiev, Gidrobiologicheskii Zhurnal, Vol 7, No 6, Nov/Dec 71, pp 80-83

Abstract: Blue-green algae of the Kremenchug reservoir contain a considerable amount of polysaccharides both easy and difficult to hydrolyze, including easily accessible ones for assimilating glucose, mannose, galactose, and xylose. They are also rich in protein substances which can, upon hydrolysis, be converted into amino acids and used in the process of growing microorganisms. Algae contain a sufficient amount of ash elements, but they are poor in phosphorus. Blue-green algae contain a large selection of B-group vitamins. These algae contain all the components necessary for the development of heterotrophic microorganisms used in the brewing and food industry. The necessary number of components can be balanced.

1/1

- 17 -

#0047322

PRIMARY SOURCE:

Ukrayns'kiy Biokhimichnyi Zhurnal, 1970,
Vol 42, Nr 1, pp 71-75

Ref. Code: UR 0300

STRENGTHENING OF THE SYNTHETIC PROCESSES IN THE RABBIT
REGENERATING LIVER BY STIMULATING CO₂ FIXATION

G. I. Zhurbin, M. F. Guly, N. A. Stogny

Institute of Biochemistry, Academy of Sciences, Ukrainian SSR, Kiev

Summary

The effect was studied of the mixture of salts (sodium bicarbonate—25 parts, magnesium sulphate—5 parts, manganese sulphate and zinc sulphate—by 0.1 part) activating the processes of CO₂ fixation in animal organism on the synthetical processes in the dynamics of the rabbit liver regeneration with ablation of 80% of the organ mass after 10 days of feeding them on the mentioned salt mixture at a rate of 604 mg per 1 kg of live weight. Considerable intensification and acceleration of protein, lipid and glycogen synthesis are established. The process of the initial liver weight restoration noticeably accelerates. The content of dry substances is increased by 6% in the regenerating liver of rabbits which were fed on the salt mixture.

REEL/FRA
19790843

44 2

USSR

UDC: 598.842.8:616.981.452

PEYSAKHIS, L. A., STOGOV, I. I., STEPANOV, V. M., and BIRIKOV, D. I., Central Asian Scientific Research Antiplague Institute, Alma Ata

"Experimental Study of Plague in the Wheatear (*Oenanthe isabellina*) in Connection With Its Possible Role in Natural Foci of the Disease"

Moscow, Zoologicheskii Zhurnal, Vol 49, No 11, Nov 70, pp 1691-1696

Abstract: Contrary to the widely held view that birds are not susceptible to plague, the wheatear (*Oenanthe isabellina*) proved to be highly sensitive to the agent of the disease. Of 46 birds inoculated with doses of 10^2 to 10^7 microbial cells, 33 died 2 to 19 days later with the septic form of plague. *Xenopsylla cheopis* and *Ceratophyllus laeviceps* fleas allowed to feed on the sick birds just before they died became infected. When placed on healthy wheatears and several rodent species, the fleas transmitted the disease to these animals. Since the wheatear lives in close contact with rodent plague vectors, it probably participates in circulation of the agent and its dissemination throughout the natural foci. The fact that many of the experimentally infected birds did not show any symptoms of plague for more than 6 days indicates the possibility that during their seasonal migrations sick birds may carry the agent long distances during the incubation period of the disease.

1/1

Acc. Nr:

USSR

MARTINEVSKIY, I. L., and STOGOVA, A. G., Central Asian Anti plague Institute,
Alma-Ata

UDC 576.856.853

"Isolation and the Properties of Some Auxotrophic Mutants of 'Vibrio Cholerae' El tor"
Moscow, Genetika, Vol 9, No 1, 1973, pp 92-95

Abstract: Difficulties in identifying and describing different cholera vibrios can be overcome by studying related vibrios. Stable auxotrophic mutants were produced from Vibrio cholerae El Tor after treatment with N-methyl-N-nitro-N-nitrosoguanidine. They included 62 isoleucine-, 12 methionine-, 10 inosine-, 5 adenine-, 5 tryptophan-, 3 valine-, 2 histidine-, 3 arginine-, 2 thymidine-, 1 serine-, 2 leucine-, and 2 cysteine-dependent mutants, 4 with a triple dependence (valine, leucine, isoleucine), and 5 with undetermined dependence. Such mutants did not grow when the particular amino acid was replaced by predecessors. Methionine-, arginine-, leucine-, and thymidine-dependent auxotrophs altered their sensitivity to Mukerjee phagotypes as compared to the initial strain and were less active biochemically in solid nutrient media with respect to mannose, sucrose, maltose, and glucose. As was true for the initial strain, all auxotrophs are hemolytically inactive, agglutinate with O-1 and Inaba sera,

- 35 -

USSR

MARTINEVSKIY, I. L. and STOGOVA, A. G., Genetika, Vol 9, No 1, 1973, pp 92-95
grow in Hottinger medium containing polymyxin (50 units/ml), and have a positive hemagglutination reaction with chick erythrocytes. With respect to biochemical activity they belong to Heiberg group 1.

2/2

Immunology

USSR

UDC 616.932+616.932-008.97]-078:616.15-097.5

STOGOVA, A. G., SEMIOTROCHEV, V. L., and ZHEGLOVA, D. V., Central Asian Scientific Research Antiplague Institute, Alma-Ata

"Detection of Agglutinins and Bacteriolysins in the Blood Serum of El Tor Cholera Patients and Vibrio Carriers"

Moscow, Laboratornoye Delo, No 10, 1970, pp 594-595

Abstract: The agglutination and bacteriolysis tests as modified by Sack and coworkers were used to investigate the sera of two El Tor cholera patients, four vibrio carriers, 62 persons in contact with them, and 40 persons who lived in a cholera-free area. Agglutinins were present in titers ranging from 1:20 to 1:160 in the sera of patients and carriers 3 to 5 days after bacteriological confirmation of the disease. A second examination of their sera 10 days later revealed an increased agglutinin titer in those who had reacted positively before, as well as the appearance of agglutinins after the first negative result. Detection of bacteriolysins in a titer of 1:10,000 during the initial examination in all of the persons from whom the agent was isolated, together with the complete correspondence and increase in titers during the second examination of sera, indicates that

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USSR

STOGOVA, A. G., et al, Laboratornoye Delo, No 10, 1970, pp 594-595

these antibodies appear early. The results of examining the 102 persons who had come into contact with the patients or who lived in a cholera-free area were negative in all cases but one. It is concluded that the agglutination and bacteriolysis reactions are sufficiently specific and sensitive to be used in diagnosing cholera.

2/2

- 39 -

1/2 038 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--ELECTRICAL AND OPTICAL PROPERTIES OF STRONTIUM TITANATE
SEMICONDUCTOR SINGLE CRYSTALS -U-
AUTHOR-(05)-ROZHDESTVENSKAYA, M.V., SHEFTEL, I.T., STOGOVA, V.A.,
KOZYREVA, M.S., KRAYUKHINA, E.K.
COUNTRY OF INFO--USSR

SOURCE--FIZ. TVERD. TELA 1970, 12(3), 873-8

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--SEMICONDUCTOR SINGLE CRYSTAL, STRONTIUM COMPOUND, TITANATE,
SEMICONDUCTOR CONDUCTIVITY, TEMPERATURE DEPENDENCE, ELECTRON MOBILITY,
PHASE TRANSITION, HALL EFFECT, IMPURITY LEVEL, CERIUM, NIOBIUM,
PEROVSKITE, ABSORPTION SPECTRUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--1987/1994

STEP NO--UR/0181/70/012/003/0873/0878

CIRC ACCESSION NO--AP0105068

UNCLASSIFIED

2/2 038

CIRC ACCESSION NO--AP0105068

UNCLASSIFIED

PROCESSING DATE--23OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RESULTS ARE GIVEN OF THE MEASUREMENTS OF THE TEMP. DEPENDENCE OF ELEC. COND. (σ) AT 300-78 DEGREES K FOR SRTIO SUB3 CRYSTALS DOPED WITH VARIOUS AMTS. OF CE AND NB AND ALSO REDUCED IN H. FOR CRYSTALS DOPED WITH CE, THE TEMP. DEPENDENCE OF MOBILITY IS GIVEN. DECREASE IN σ WITH INCREASING TEMP. IS A RESULT OF DECREASED MOBILITY OF CHARGE CARRIERS. THE PRESENCE OF BREAKS IN THE TEMP. DEPENDENCE OF σ IS RELATED TO THE DISTORTION OF THE LATTICE OF SRTIO SUB3 ON COOLING AND TO THE PHASE TRANSITION AT 110 DEGREES K. MEASUREMENTS OF THE HALL EFFECT AT ROOM TEMP. SHOWED THAT THE HALL CONCN. OF CHARGE CARRIERS IN CRYSTALS WITH VARIOUS CONTENTS OF CE AND NB PRACTICALLY COINCIDES WITH THE IMPURITY CONCN. DETD. BY SPECTRAL ANAL. IT IS ASSUMED THAT CE PRIME3 POSITIVE REPLACES SR PRIME2 POSITIVE AND NB PRIME5 POSITIVE REPLACES TI PRIME4 POSITIVE IN THE PEROVSKITE LATTICE, THUS CREATING 1 FREE ELECTRON. FOR THIS SERIES OF CRYSTALS, ABSORPTION SPECTRA WERE INVESTIGATED. IN THE CASE OF DOPING WITH CE, THE ABSORPTION COEFF. DEPENDS ON THE CONTENT OF THE DOPING IMPURITY. AT THE ABSORPTION MAX. AT WAVELENGTHS OF 0.5 AND 1.2 μ , THE ABSORPTION COEFF. DEPENDS LINEARLY ON THE CONCN.

UNCLASSIFIED

USSR

STOKOLOVA, N. A.

UDC: 8.74

"On Trends in the Field of Development of Data-Retrieval Languages"

V sb. Issled. po mat. lingvist., mat. logike i inform. vazykam (Research on Mathematical Linguistics, Mathematical Logic and Information Languages --collection of works), Moscow, "Nauka", 1972, pp 160-199 (from RZh-Kiber-
netika, No 6, Jun 72, Abstract No 6v507)

[No abstract]

USSR

GATAULLIN, I. G., STOLBETSOV, V. I., Moscow

"Determination of Nonlinear Oscillations of a Fluid in a Circular Cylindrical Sector"

Moscow, Mekhanika Zhidkosti i Gaza, No. 5, Sep-Oct 70, pp 124-131.

Abstract: The principal hydrodynamic coefficients of the equations describing the large oscillations of an ideal, incompressible and homogeneous liquid in tanks in the form of a cylindrical sector are calculated. Nonlinear oscillations of a liquid in cylindrical cavities were studied in earlier works. In this work, the method of solution of certain nonlinear problems on the oscillations of an ideal liquid in arbitrary cavities suggested in a preceding work by the same authors is used. The dependence of the calculated coefficients on the geometric parameters of the tank form studied is analyzed.

1/1

USSR

UDC 632.95

(2)

POLESHCHUK, V. D., LATYSHEV, V. I., KAMENNOV, N. A., DREMOVA, V. P., SMIRNOVA, S. N., STOLBOV, D. N.

"Repellent Activity of Diethylamide and Dibutylamide of Valeric Acid with Respect to Various Types of Ticks"

Sb. nauch. tr. Mosk. NII vaktsii i syvorotok (Collection of Scientific Works of Moscow Scientific Research Institute of Vaccines and Serums), No 22, 1972, pp 209-211 (from RZh-Khimiya, No 15, Aug 72, Abstract No 15N504)

Translation: According to field and laboratory tests, diethylamide and dibutylamide of valeric acid have high repellency with respect to the *Hyalomma plumbeum* tick which carries hemorrhagic Crimean fever. The tissue treated with these repellents calculated at 7 grams/m² remained repellent for 5 days. For *Alectrolobius tholorani* papillipes these materials were not repellent. The five-day repellency of tissue for *Ixodes persulcatus* ticks, *Dermacentor pictus* and *D. marginatus* was achieved from a dibutylamide dose of 55-65 g/m². The DETA had no repellency with respect to *N. p. plumbeum*, *A. th. papillipes* and *D. marginatus*, but tissue treated with DETA calculated at 40-50 g/m² remained repellent for 20 days for *I. persulcatus* and *D. pictus*.

1/1

USSR

UDC 911.3.616.9:576.89(571.1)

STOLBOV, N. M., and DROBYSHEVA, S. A.

"Mass Attack of Dermanyssidae (Gamasoidea) Ticks on Humans in Western Siberia"

V sb. Vtoroye Akarologicheskoye soveshchaniye. Ch. 2. Tezisy dokl. (Second Acarological Conference. Part 2. Theses of Reports -- collection of works) Kiev, "Nauk. Dumka," 1970, pp 146-147 (from RZh-Meditsinskaya Geografiya, No 4, Apr 71, Abstract No 4.36.44)

[No abstract]

1/1

- 42 -

COLLEGE

17 November 1971

JPRS-54502

17 NOV 71 UDC 617.697:628.16.08:09

6301184

Article by G. S. Moschman, S. I. Chelak, In Ye. Syrov, Y. P. Steibor, N. S. Shklyar and V. V. Kozmambashov, Racoon, Izvestiya Akademiya SSSR, Zoologicheskoye Nauchnoye Ispytaniye, No. 5, 1977, signed to mean it is correct. [184-190]

Department of Chemistry Faculty

The reprocessing of water during prolonged space flight is of significance for reducing the weight of the water supply.

Based on data furnished by a number of authors [1, 10, 12],

vers 25) on 1 month water during a flight of 3 days amounts to about 11-12 g. The daily needs 2.4 g [oleic], 2.0 g water, 15.4, while on a 1 year flight, he needs 280 g [oleic], 240 g water, 185 g. The water sources on spacecraft can consist of atmospheric humidity (condensates (H₂O), urine, moisture), hydrazine water, atmospheric humidity (condensates of higher and lower hydrocarbons), atmospheric water (condensates of space flights, it is primarily feasible to recover water from the least polluted products of AlCl₃ type or the transverse water plants).

The main source of ARO is the moisture from air breathed by man, containing highly volatile products of his life activity. At the present time, there has been identified in ARO a large number of chemical compounds, both (identified), we include ammonia. Among the identified inorganic compounds, both organic impurities, we include ammonia, nitrogen, nitrites, chlorides, phosphates and salts of calcium, magnesium, potassium, sodium and ammonia. Among the ketones, aldehydes and amines. [7].

fatly acids are formed in the human organism during the transformation of the uric acid into uricophosphorus. It is released mainly with exhaled air and in (season's) sweat. The release of uricophosphorus is also possible through the skin when its level in the blood is high.

1/2 015 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--UTILIZATION OF THE COMPLEX FORMING PROPERTIES OF METALS FOR THE
PURIFICATION OF AN ATMOSPHERIC MOISTURE CONDENSATE FROM AMMONIUM IONS
AUTHOR--(05)-YEGOROVA, L.E., KRASNOSHCHIEKOV, V.V., PATRIKEYEVA, T.M.,
PEPELIAYEV, YU.V., STOLBOV, V.F.
COUNTRY OF INFO--USSR

SOURCE--KOSMICHESKAIA BIOLOGIIA I MEDITSINA, VOL. 4, JAN.--FEB. 1970, P.
56-60
DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--MAGNESIUM, ZINC, COPPER, COBALT, NICKEL, AMMONIUM COMPOUND,
ION EXCHANGE RESIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--1997/1559

STEP NO--UR/0453/70/004/000/0056/0060

CIRC ACCESSION NO--AP0120338

UNCLASSIFIED

212 015

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0120338

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DESCRIPTION OF A PROCEDURE FOR THE ELIMINATION OF AMMONIUM IONS FROM ATMOSPHERIC MOISTURE CONDENSATES BY TREATMENT WITH ME(MG, ZN, CU, CO, NI) EXCHANGE RESINS. THE VOLUME SORPTION CAPACITY OF THESE ION EXCHANGE RESINS IS STUDIED AS A FUNCTION OF THE AMMONIUM CONCENTRATION AND PH. EXPERIMENTS INDICATE THAT AMMONIA, AMINES AND AMINO ACIDS CAN BE EFFECTIVELY REMOVED FROM AQUEOUS SOLUTIONS BY THIS METHOD.

UNCLASSIFIED

1/2 016 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--USE OF THE COMPLEX FORMING PROPERTIES OF METALS FOR FREEING
ATMOSPHERIC CONDENSATE FROM AMMONIUM IONS -U-
AUTHOR--YEGOROVA, L.E., KRASNOSHCHKOV, V.V., PATRIKEYEVA, T.M.,
PEPELYAYEV, YU.V., STOLBOV, V.F.
COUNTRY OF INFO--USSR

SOURCE--MOSCOW, KOSMICHESKAYA BIOLOGIYA I MEDITSINA, RUSSIAN, VOL 4, NO 1,
JANUARY-FEBRUARY 1970, SUBMITTED FOR PUBLICATION 25 SEPTEMBER 1969, PP
DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--AMMONIA, ADSORPTION, CATION EXCHANGE RESIN, METAL COMPLEX
COMPOUND, ATMOSPHERIC WATER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1987/1291

STEP NO--UR/0453/69/004/001/0056/0060

CIRC ACCESSION NO--AP0104629

UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC-ACCESSION NO--AP0104629

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A STUDY WAS MADE OF THE SORPTION OF AMMONIUM, WHICH IS ONE OF THE MAIN COMPONENTS OF ATMOSPHERIC CONDENSATE, FROM WATER SOLUTIONS BY MEANS OF CATION EXCHANGE RESINS IN THE ME FORM. THE RELATIONSHIP BETWEEN THE VOLUME CAPACITY OF CATIONITES IN ME FORM, THE AMMONIUM CONCENTRATION IN THE SOLUTION AND THE HYDROGEN ION CONCENTRATION WAS EXAMINED. IT WAS FOUND THAT THE USE OF CATIONITES IN ME FORM (PARTICULARLY IN THE CU FORM) INCREASED THEIR AMMONIUM CAPACITY.

UNCLASSIFIED

USSR

UDC 621.791.052:669.
.715:539.319

STOLBOV, V. I., Candidate of Technical Sciences, and
OSYANKIN, G. V., Engineer, Tolyatti Polytechnic Institute

"Influence of Assembly Stresses in Edges on Displacements and
Residual Stresses When Welding Sheets of Aluminum Alloys"

Moscow, Svarochnoye Proizvodstvo, No 1(471), Jan 74, pp 13-15

Abstract: The joining of thin aluminum sheets by the lap welding method is recommended in order to eliminate stability losses in welding and to secure the production of an ordinary butt weld when melting the lap joint. The character of edge displacement, depending on the parameters of butt building with the lap joint, was analytically investigated on the basis of the change in potential energy of the system in welding 2-mm-thick joints of AMg6 alloy. The residual longitudinal stresses in welding with the meltable lap joint were 25-30% lower than in resistance butt welding. The derived analytical dependences were experimentally proved on 150 x 300-mm specimens, 0.8-2 mm thick, of AMg6, AMg3P, and ADON alloys which were three-phase arc-welded with non-melting electrodes. A satisfactory convergence of calculated and experimental data was found. Six figures, 11 formulas, six bibliographic references.

1/1

UDC 621.791:62-413:699.71

USSR

STOLBOV, V. I., Candidate of Engineering Sciences, and OSYANKIN, G. V.,
Engineer, Tol'yattinsk Polytechnic Institute

"High-Speed Welding of Thin Aluminum-Alloy Sheet"

Moscow, Svarochnoye Proizvodstvo, No 3, Mar 73, pp 14-16

Abstract: The technology is described for welding aluminum alloys D16T, AMg6 and others at high rates (up to 130-200 m/hr) for sheet thicknesses of 3-0.5 mm without the formation of cracks. In tests of welded samples for static tension it was established that alloys of the magnalium type fail primarily in the fusion zone from the side of the top sheet (for lap joints) and alloys of the ADON and AMtsP types fail in the base material from the side of the bottom sheet at a distance of 5-7 mm from the fusion zone. In all cases the strength of the joints was close to the base-metal strength. Industrial testing of the developed technology were made on pipe (200 mm in diameter and 1400 mm long with a 2-mm wall thickness) from alloy AMg6. For this purpose an USPSH unit was designed and produced with a single-sided edge clamp and a mechanism for torch movement which provided a welding rate up to 180-200 m/hr. The use of this technology made it possible to lower costs for the production of 1 m of seam by almost three times due to

1/2

- 67 -

USSR

STOLBOV, V. I., and OSYANKIN, G. V., Svarochnoye Proizvodstvo, No 3, Mar 73,
pp 14-16

simplification of the preparation and assembly of the rims for welding,
increasing welding rate, and eliminating the necessity of straightening a
part and correcting defects. 7 figures, 4 bibliographic references.

2/2

Magnesium

UDC 669.721

(1)

USSR

VYATKIN, I. P., KECHIN, V. A., MUSHKOV, S. V., SECHELKONOGOV, A. A., and
STOLBOVA, A. D.

"On the Continuous Production of High-Purity Magnesium"

Moscow, Tsvetnyye Metally, No 6, Jun 73, pp 47-48

Abstract: The continuous production of high-purity magnesium by processing the melt with titanium-containing additives in a casting complex is described. The quality of the magnesium produced satisfies the purity requirements for all admixtures, except for iron admixtures. To eliminate iron, the titanium-containing additives are introduced into the refining chamber of the furnace together with crude magnesium; as a result of titanium reacting with iron in the crude, the generated compounds precipitate on cooling on the bottom of the refining chamber. The iron-purified magnesium, under pressure of the next portion of the cast crude, overflows into the pouring chamber; from there it is fed onto the casting conveyor. The iron content, its analysis, and the dynamics of C_{Fe} change are discussed. Industrial results showed that melts contained 0.003-0.004% Fe and 0.006-0.014% Ti. Two tables, three bibliographic references.

1/1

UDC: 612.846+612.886

USSR

LEVASHOV, M. M. and STOLBKOV, Yu. K., Physiological Vestibular Apparatus Laboratory (Headed by V. A. Kislyakov), I. P. Pavlov Institute of Physiology, USSR Academy of Sciences, Leningrad

"Estimating the Electronystagmogram of a Rabbit in Angular Velocity Units"

Leningrad, Fiziologicheskiv zhurnal SSSR im. I. M. Sechenova, No 10, vol 58, 1972, pp 1535-1542

Abstract: Because the necessity often arises of obtaining the velocity of the slow component in the quantitative estimate of a nystagmus in angular velocity units of degrees per second, the authors propose calibration of the electronystagmogram of a rabbit by using passive or forced rotations of the eye. They give the results of investigations into checking the reliability of this method of calibration, verifying the possibility of its use in various experiments on rabbits, and using it to validate some indirect calibration methods. In these investigations, steel needle-like electrodes are used to avoid the electrooculographic potential, the signal is amplified by the UBP-03 circuit, and is recorded on the N-102 oscillograph. The authors find that

1/2

UDC: 612.846+612.886

USSR

LEVASHOV, M. M., et al, Fiziologicheskii zhurnal SSSR im. I. M. Sechenova, No 10, vol 58, 1972, pp 1535-1542

although a number of problems still remain to be cleared up, the method can now be used in practice.

2/2

- 80 -

Magnesium

UDC 669.721

USSR

VYATKIN, I. P., KECHIN, V. A., and ~~STOLBOVA, A. D.~~

"Hydrogen in Electrolytic Magnesium and Initial Magnesium Alloys"

Moscow, Tsvetnyye metally, No 5, May 72, pp 57-58

Abstract: The presence of gases -- primarily hydrogen -- in magnesium and magnesium alloys adversely affects the quality of the finished product. Bar materials are among the principal hydrogen sources. This study deals with hydrogen content in crude magnesium as a function of the electrolyzer feed system and other related electrolytic and production processes. The results obtained offer a positive evaluation of producing castings directly from molten alloys and bypass pouring and remelting operations of bar metals and alloys in order to reduce the hydrogen content. Maximum hydrogen contents are shown to occur during stirring operations. (2 illustrations)

1/1

Genetics

UDC 576.312.36

USSR

STOLBOVA, N. G., Laboratory of Radiation Genetics, Institute of Cytology and Genetics, Siberian Department of the Academy of Sciences USSR, Novosibirsk

"Distribution of Induced Human Chromosome Breaks in Relation to the Stage of Mitosis and Nature of the Mutagen"

Leningrad, Tsitologiya, No 12, 1970, pp 1,550-1,561

Abstract: The distribution of chromosome aberrations induced in cultured human peripheral blood leukocytes and embryonic fibroblasts by ethylenimine and N-nitrosomethylurea was found to vary with the position of the cells in the mitotic cycle, the nature of the mutagenic agent, and the type of cells. Analysis of the distribution of aberrations between chromosomes and according to the length of chromosomes showed that the distribution pattern observed after exposure of leukocytes to the same mutagen in different periods of interphase varied with the position of the cells in the mitotic cycle. However, the pattern of aberrations induced by different mutagens during DNA synthesis was determined by the specific nature of the action of the mutagen. The location of the chromosome breaks resulting from the action of the same mutagen (N-nitrosomethylurea) on leukocytes and embryonic fibroblasts in the S phase was independent of the type of cell.

1/1

172 026 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--NONLINEARITY OF THE REVERSIBLE ORIENTATION OF PHOTOICHRISM -U-
AUTHOR--(021)-MAKUSHENKO, A.M., STOLBOVA, O.V.
COUNTRY OF INFO--USSR
SOURCE--OPT. SPECTROSC. 1970, 28(3), 600-1
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS, MATERIALS
TOPIC TAGS--LIGHT REFLECTION, LIGHT TRANSMISSION, VISCOUS FLUID, DYE,
DICHRONISM
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3002/1104 STEP NO--UR/0051/70/028/003/0600/0601
CIRC ACCESSION NO--AP0128531

UNCLASSIFIED

2/2 026

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0128531

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A NEW ANAL. FORMULA FOR STATIONARY ORIENTATION DICHROISM (D SUBST) WAS DERIVED. THE RELATION DESCRIBES SATISFACTORILY THE D SUBST-N SUBOR DEPENDENCE (N SUBOR IS THE QUANTUM INTENSITY OF THE ORIENTING LIGHT) FOR VISCOUS SOLNS. SUCH AS GLYCEROL SOLNS. OF CONGO RED OR P-ONC SUB6 H SUB4 NME SUB2.

UNCLASSIFIED

UDC 621.43.011:533+621.5.533

USSR

STOLER, V. D., BIKMILLIN, R. R.
 "A Hollow Circular Jet with Central Distributed Flow"

Tr. Tsentr. N.-i. i Proyeht.-Konstrukt. In-ta Profilakt. Pnevmoniozov i Tekhn. Bezopasn. [Works of Central Scientific Research and Planning-Design Institute for Prevention of Pneumoconioses and Safety Techniques], No 4, 1971, pp 47-58, (Translated from Referativnyy Zhurnal, Mekhanika, No 11, 1972, Abstract No 11 B390 by Yu. F. Dityakin).

Translation: Results are presented from a mathematical study of the characteristics of a hollow circular jet when air is injected into its central portion (for example through a perforated wall). This injection may weaken or eliminate deflection of the axis of the circular jet from its initial direction. It is assumed in the calculation plan that the internal portion of the circular stream can be looked upon as developing in an even codirectional flow. A condition is determined, fulfillment of which prevents deformation of the axis of the circular stream. This condition is produced from the equations for flow rate and conservation of momentum. A formula is produced for calculation of the initial velocity of the stream, necessary to supply the internal part of the circular jet. Relationships are concluded for calculation of the parameters of the hollow jet with air injection into the central portion.

1/1

- 94 -

1/2 017
TITLE--STEEL -U-

UNCLASSIFIED

PROCESSING DATE--27NOV70

AUTHOR-(04)-SHAYKUNOV, N.D., NI, V.N., STOLETNIY, M.F., VOVSINA, A.D.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 263,893

REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,

DATE PUBLISHED--10FEB70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--STEEL, CHEMICAL COMPOSITION, MECHANICAL PROPERTY, CARBON
STEEL, MANGANESE STEEL, SILICON STEEL, PHOSPHORUS STEEL, CHROMIUM STEEL,
SULFUR, METALLURGIC PATENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3003/1086

STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0130120

UNCLASSIFIED

2/2 017

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AA0130120

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A STEEL WITH IMPROVED MECH.
PROPERTIES HAS THE FOLLOWING COMPN.: C 1.6-1.9, MN 1.6-1.9, SI 1.2-1.5,
V 0.2-0.4, CR SMALLER THAN 0.3, S SMALLER THAN 0.04, P SMALLER THAN
0.08PERCENT, AND FE THE REMAINDER.

UNCLASSIFIED

USSR

UDC 536.46

STOLIN, A. M. and MERZHANOV, A. G.

"Critical Conditions of Thermal Explosion in the Presence of Chemical and Mechanical Thermal Sources"

Novosibirsk, Fizika Goreniya i Vzryva, vol 7, No 4, December 1971, pp 502-510

Abstract: On the basis of a simplified quasi-stationary approach to the solution of the thermodynamic problems proposed by the authors named above in an earlier article (Dokl. AN SSSR, 1971, 198, p 6), they derive analytically the conditions for thermal explosion for Couette flow in a viscous, reactive liquid. The explosion may be caused by chemical or mechanical sources of heat such as internal friction, a subject which has not received sufficient attention in the past. Cases of the viscosity as a different function of the temperature and as a different method for specifying the boundary conditions at the mobile limit are considered. The critical conditions for specified tangential tension and specified flow velocities are derived, and an example for computing the critical parameters is given.

1/1

USSR

UDC: 532.135

MERZHANOV, A. G., POSETEL'SKIY, A. P., STOLIN, A. M., SHTEYNBERG, A. S.,
Affiliate of the Institute of Chemical Physics, Academy of Sciences of the
USSR, Chernogolovka, Moskovskaya Oblast

"Experimental Realization of a Hydrodynamic Thermal Explosion"

Moscow, Doklady Akademii Nauk SSSR, Vol 210, No 1, May 1973, pp 52-54

Abstract: In studying the problem of nonisothermal Poiseuille flow in a circular pipe with a given pressure gradient, it has been discovered that there is no stationary solution at certain values of the parameters. The phenomenon of hydrodynamic thermal explosion has been predicted on the basis of this theoretical research. It has also been theoretically demonstrated that this effect could arise in Couette flow with time-constant shear stress on a moving boundary. However, up until now this phenomenon had not been experimentally confirmed. In this paper the authors describe the successful realization of the conditions which produce this effect and give quantitative verification of the theory. The research was done on a rotation viscometer with pneumatic drive ensuring constant torque. The basic distinguishing feature of the installation is the design of the outer

1/3

USSR

MERZHANOV, A. G. et al., Dokl. AN SSSR, May 73, Vol 210, pp 52-54

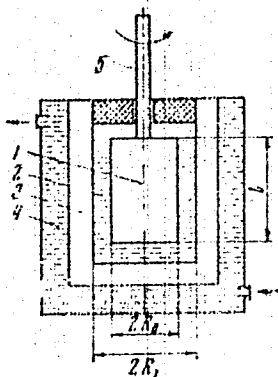
cylinder (see figure) which is made in the form of a Dewar flask with outer thermostatically controlled jacket 4. The inner rotating cylinder 1 is a hollow steel cup connected by ebonite rod 5 to the rotor of a small gas turbine. The diameter of the outer cylinder $2R_1 = 4.84$ cm, the diameter of the inner cylinder $2R_0 = 3.9$ cm, and the length of the inner cylinder $l = 7.2$ cm. The gap 2 is filled with the liquid to be studied to a level somewhat higher than the top of the inner cylinder. The rpm n of the inner cylinder was measured by a perforated disc on the shaft and a photocell with output to a frequency meter. Temperature differential was measured by a thermocouple with one junction on the inside wall of the Dewar flask and the other inside the thermostatically controlled jacket. The resultant curves for temperature differential and rotational velocity as functions of time demonstrate the effect of hydrodynamic thermal explosion.

2/3

- 141 -

USSR

MERZHANOV, A. G. et al., Dokl. AN SSSR, May 73, Vol 210, pp 52-54



1--inner cylinder; 2--fluid to be studied; 3--air space; 4--jacket with heat-transfer agent; 5--ebonite rod

3/3

UDC: 621.984.3

2

USSR

SMIRNOV, V.S., DANILEVSKIY, O.F., ALEKSANDROV, A.A., KAGAN, E.S., STOL'NIY, V.I.,
and ZOR'KIN, YE.F.

"Stamping of Thick Two-Layer Steel-Titanium Sheets"

Moscow, Kuznechno-Shtampovoye Proizvodstvo, No 1, Jan70, pp 18-19

Abstract: The Izhorskiy Plant imeni A.A. Zhdanov produces elliptical bottoms with 900-, 1000-, and 1600-mm diameters by the hot stamping of VMSt3sp - VTl-0 sheets 20 mm thick. The bimetallic steel-titanium sheets were obtained by vacuum pack rolling. In the hot stamping of bimetallic steel-titanium sheets, the correct selection of billet heating conditions is very important. Repeated heating of the steel-titanium bimetal, generally leads to a growth of the transition diffusion zone between the layers and increases its hardness, thus leading to lower bimetal quality. In heating the bimetallic billets, no material titanium gas saturation should be permitted, owing to the difficulty of removing the gas-saturated layer. If the billet heating temperature before stamping does not exceed 900°C, no noticeable growth of the transition diffusion zone between the layers occurs, and at the same time, the metal possesses adequate plasticity. Good surface quality is obtained in the stamped products. The technique, conditions, and equipment used in hot stamping of the bottoms are described. Investigations of specimens cut from various sections of the bottoms showed that heating and stamping under the conditions given do not worsen the bimetal properties. An increase in the thickness of the

USSR

SMIRNOV, V.S., et al, Kuznechno-Shtampovochnoye Proizvodstvo, No 1, Jan 70, pp 18-19

transition zone was not observed. The hardness of the transition zone did not change. Metallographic sections established that the thickness of the titanium gas-saturated layer did not exceed 0.05 mm. To obtain high-quality welded seams, it is first necessary to clean the titanium surface with an abrasive disk.

USSR

AL'TSHULER, N. S., IVOYLOVA, E. Kh., LIVANOVA, L. D., STEPANOV, V. G.,
STOLOV, A. L., Kazan' State University imeni V. I. Ul'yanov-Lenin

"Multiple-Center Structure of the Spectrum in KMgF_3 and KZnF_3 Crystals
Activated by Eu^{2+} and Gd^{3+} Ions"

Leningrad, Fizika Tverdogo Tela, Vol 13, No 10, Oct 73, pp 2958-2962

Abstract: The authors analyze the EPR spectra and study the Stark structure of noncubic centers which arise when KMgF_3 and KZnF_3 crystals are activated by isoelectronic ions of Eu^{2+} and Gd^{3+} . The EPR spectra were measured at 9 GHz and 77°K. The constants of the spin Hamiltonian of the ground state of cubic centers of Eu^{2+} in the crystals as determined from analysis of the EPR spectra are compared with the parameters of the crystal field of the same centers. A diagram is plotted for Stark splitting of levels $6p_{7/2}$ and $6p_{5/2}$ for Eu^{2+} ions in centers of cubic, tetragonal, and trigonal symmetry, and also for seven active centers of Gd^{3+} . The results show indeterminacy of the Gd^{3+} ion position.

1/1

STOLOV, A. M.

JPAS 57489
13 November 1972

SCHE CALCULATED AND EXPERIMENTAL DATA CONCERNING THE DEVELOPMENT
OF SYNCHROTRONS WITH A STEADY STATE FIELD IN THE ENERGY
RANGE OF 35-300 GIGAELECTRON-VOLTS

[Printed article by H. I. Bogdanov, N. A. Khoroshev, B. V. Kuznetsov, V. P. Savov (deceased), A. M. Stokolov, and O. V. Trokhimov, Scientific Research Institute of Electrophysical Apparatus, Acad. D. V. Yefremov, State Committee for the Use of Atomic Energy of the USSR, Leningrad, Nukleonnaya Raschetnaya i Eksperimentalnaya daniya na razrabotku sinkhrotrona na statsonomnom pole na energiya 35-300 GeV, Russian, 1971]

Calculation data and considerations are given on the reconstruction of synchrotrons with rotating superconducting electromagnets with steady-state (fixed) fields, as well as the results of experimental investigations of models of the elements of the accelerators.

In reference [1, 2] the possibility of the development of proton synchrotrons on the basis of superconducting electromagnets with a steady-state field was considered, with those devices retaining synchronously relative to an equilibrium orbit. Such a system makes it possible to change the average field in the orbit when the superconducting magnets are supplied by direct current. In this case it is no longer necessary to have a powerful excitation system for the magnetic field, losses of alternating current in the superconductors are excluded, the design of the windings and cryostats is simplified, heat inputs are decreased, and the capacity of the refrigerators and liquefiers is reduced. Among the number of the most important problems to be solved in the development of such synchrotrons is provision for stability of motion of the particles near the equilibrium orbit of constant curvature and precise synchrotron rotation of the superconducting electro-magnets.

Some problems of the dynamics of the particles are considered below, and also problems associated with the accomplishment of synchronous rotation of the electromagnets. On the basis of this consideration, two variations of the basic parameters of possible accelerators for an energy of tens or hundreds of gigaelectron-volts are given.

- 1 -

[1 - USSR - K]

USSR

3 24
ADO, YU. M., ZHURAVLEV, A. A., LOGUNOV, A. A., MYAE, E. A., NAUMOV,
A. A., PISAREVSKIY, V. YE., ROGOZINSKIY, V. G., TUSHABERASHVILI, K.
Z., SHUKHEYLO, I. A., BOYKO, S. N., KOMAR, YE. G., MALYSHEV, I. F.,
MOZIN, I. V., MONOSZON, N. A., MOZALEVSKIY, I. A., SPEVAKOVA, F. M.,
~~STOLOV, A. M.~~, TITOV, V. A., VODOP'YANOV, F. A., KUZ'MIN, A. A., KUZ'-
MIN, V. F., MINTS, A. L., RUBCHINSKIY, S. M., UVAROV, V. A., GUTNER,
B. M., ZALMANZON, V. B., PROKOP'YEV, A. I., and TEMKIN, A. S.

"Some Results of the Overall Adjustment and Start-up of the 70-Gev
Proton Synchrotron of the Institute of High-energy Physics"

Moscow, Atomnaya Energiya, Vol 28, No 2, Feb 70, pp 132-138

Abstract: The physical part of the plan for the 70-Gev proton syn-
chrotron was executed by the Institute of Theoretical and Experimental
Physics. The electromagnet with feed system, the vacuum chamber and
the injection devices were developed at the Scientific Research Insti-
tute of Electrophysical Apparatus imeni D. V. Yefremov. The radio-
electronic systems for acceleration process control and generation of

1/4

USSR

ADO, YU. M., et al., Atomnaya Energiya, Vol 28, No 2, Feb 70, pp 132-138

the accelerating field, as well as the radiotechnical measurement and beam observation systems, were developed by the Radiotechnical Institute of the Academy of Sciences USSR. "Tyazhpromelektroproyekt" [State Planning Institute for the Planning of Electrical Equipment for Heavy Industry] designed the general-purpose electrotechnical devices and cable connections. The plan for the construction complex of the accelerator was developed by the State All-Union Planning Institute. The construction of the accelerator was under the general supervision of the State Committee for the Use of Atomic Energy USSR. The adjustment of individual systems and the overall adjustment and start-up of the accelerator were carried out by the Institute of High-energy Physics and the developers of the accelerator systems. The basic beam work was done by the Institute of High-energy Physics with the participation of the Radiotechnical Institute. The construction of the accelerator was begun in 1960, and all the basic construction and assembly work was completed at the beginning of

2/4

62

USSR

ADO, YU. M., et al., Atomnaya Energiya, Vol 28, No 2, Feb 70, pp 132-138

1967. At the initial stage of construction, before the formation of the Institute of High-energy Physics in 1963, the work was coordinated by the Institute of Theoretical and Experimental Physics. The linear accelerator injector was started on 28 July 1967, the operation of the individual systems was adjusted by September 1967, and the physical start-up of the accelerator was accomplished on 14 October.

A description is given of the work done to adjust the annular electromagnet (including the electromagnet cooling and feed systems), the injection system (consisting of matching channel and injection device), the vacuum system, the radioelectronic system (including the accelerating field generation system, the acceleration process control system, and the radiotechnical measurement system), and the beam observation system (which provides for beam observation in the first revolution and during acceleration). In the physical start-up of the accelerator the main efforts were directed towards obtaining accelerated protons of the planned energy, and the problem of obtaining high

3/4

USSR

ADO, YU. M., et al., Atomnaya Energiya, Vol 28, No 2, Feb 70, pp 132-138

intensity of the accelerated proton was not raised.

The article gives a listing of the principal parameters of the proton synchrotron, as well as a schedule of the individual stages of the start-up of the accelerator. Photographs include a view of the part of the ring hall in the beam injection area and a general view of the hall of ignitron rectifiers.

4/4

USSR

UDC: 621.319.4

KRISTALINSKIY, L. L., STOLOV, L. A.

"Quantitative Indices of Reliability of Oxide-Semiconductor Capacitors as Functions of the Series-Connected Resistance"

Elektron. tekhnika. Nauchn.-tekhn. sb. Radiodetali (Electronic Technology. Scientific and Technical Collection. Radio Components), 1970, vyp. 4(21), pp 55-56 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5V319)

Translation: One of the possible mechanisms of failures of oxide-semiconductor capacitors is analyzed. The failure rate is studied as a function of series-connected resistance. An analytical expression is found for this relationship. Resumé.

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1/2 032 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--RELAXATION PROCESSES DURING ELECTRODYNAMIC PLASMA ACCELERATION -U-
AUTHOR--(02)-KOLESNIKOV, P.M., STOLOVICH, N.N.
COUNTRY OF INFO--USSR
SOURCE--MINSK, BELORUSSIAN SSR. INZHENERNO-FIZICHESKII ZHURNAL, VOL. 18,
MAR. 1970, P. 517-526
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--RELAXATION PROCESS, PLASMA ACCELERATION, MASS TRANSFER,
ELECTRON CAPTURE, CHARGE EXCHANGE, ION RECOMBINATION, CATHODE SPUTTERING
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1996/1438 STEP NO--UR/0170/70/018/000/0517/0526
CIRC ACCESSION NO--AP0118427
UNCLASSIFIED

2/2 032

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0118427

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ANALYSIS OF THE PRINCIPAL PHYSICAL PROCESSES LEADING TO THE INTENSE MASS TRANSFER IN AN ELECTRODYNAMICALLY ACCELERATED PLASMA. PARTICULAR ATTENTION IS GIVEN TO THE COMBINED EFFECT OF RECOMBINATION, AMBIPOLAR DIFFUSION, ELECTRODE SPUTTERING, CHARGE EXCHANGE, ELECTRON CAPTURE BY IONS, AND RESISTANCE FORCES ON PLASMA ACCELERATION. THE MASS TRANSFER EQUATIONS ARE SOLVED WITH ALLOWANCE FOR THESE EFFECTS.

UNCLASSIFIED

USSR

UDC 621.785:666.152.001.4

2

STARODUBOV, K. F., SAVENKOV, V. YA., SPIVAKOV, V. I., STOLPAKOV, M. A.,
GORBATOV, V. I., and RUSETSKAYA, N. I.

"Heat Treatment of Steel Plates"

Dnepropetrovsk, Metallurgicheskaya i Gornorudnaya Promyshlennost', No 4, (70),
Jul-Aug 71, pp 41-43

Abstract: Workers of the Institute of Ferrous Metallurgy and the Zhdanov Metallurgical Institute have developed a method and facility for a new type of heat treatment of steel plates guaranteeing high rates and uniformity of cooling. Results of investigations carried out under laboratory and industrial conditions on steel plates of different thicknesses (3-28 mm) and brands (3, 20sp, 3 sp, and 14G2SAF) are discussed. An experimental-industrial lot of 10-mm-thick plates of 14G2SAF steel was heat-treated up to the yield point of $\sigma = 60-65 \text{ kg/mm}^2$. Welded joints of 14G2SAF steel showed a loss of strength of 1-3% after welding. Four illustrations, two tables, two biblio. refs.

1/1

USSR

UDC 632.95

SMOLINA, A. I., ~~STOLPER, A. I.~~, and KHASKIN, I. G.

"Nematocidal Properties of Several Dichloroacetate Esters"

Moscow, Khimiya v Sel'skom Khozyaystve, Vol 10, No 2, (100), 1972, pp 42-44

Abstract: Dichloroacetate esters are of special interest as nematocides because the starting material from which they are made, chloral, is a cheap industrial product. Larvae of the gallic nematode *Meloidogyne* Sp. and in several cases larvae of the stem potato nematode *Ditylenchus* destructor Thorn were used as test objects. Methyl, ethyl, propyl, amyl, allyl, ortho-cresyl, and hexyl esters were effective in the laboratory tests, and the allyl, amyl, and hexyl esters were effective in field experiments.

1/1

USSR

UDC 632.95

SHIRANKOV, D. F., ABRAMOVA, K. A., STOLPER, A. L., and KHASKIN, I. G.

"A Herbicide"

USSR Authors' Certificate No 268798, filed 18 Nov 68, published 16 Jul 70
(from RZh-Khimiya, No 3, 10 Feb 71, Abstract No 3N615 P)

Translation: Butyl ester of dichloroacetic acid introduced into the soil before planting in a dose of 10 kg/ha is proposed as a herbicide for controlling monocotyledonous weeds in fields of dicotyledonous plants (sunflowers, radish, buckwheat, mustard, beets). This herbicide reduced the green mass of monocotyledons by 53-100 percent. Although it is not as effective as sodium trichloroacetate, this weed-killer has the advantage of being safe for the crops mentioned above.

1/1

1/2 026 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--PASSAGE OF REACTOR NEUTRONS AT OBLIQUE ANGLES THROUGH SHIELDS -U-
AUTHOR--(04)-KUZNETSOV, V.G., SAKOVICH, V.A., SAKHAROV, V.M., STOLPOVA,
I.A.
COUNTRY OF INFO--USSR
SOURCE--VOP. DOZIM. ZASHCH. IZLUCH. 1969, NO. 9, 22-9
DATE PUBLISHED-----70
SUBJECT AREAS--NUCLEAR SCIENCE AND TECHNOLOGY
TOPIC TAGS--NEUTRON SHIELDING, REACTOR SHIELDING, ANGULAR DISTRIBUTION,
NEUTRON SPECTRUM, IRON, NEUTRON SCATTERING
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FAME--3007/1006 STEP NO--UR/2892/70/000/009/0022/0029
CIRC ACCESSION NO--AP0136433
UNCLASSIFIED

2/2 026

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0136433

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BY USING THE METHOD OF SPHERICAL HARMONICS, BOTH ENERGY SPATIAL AND ANGULAR DISTRIBUTIONS ARE STUDIED OF REACTOR N INCIDENT AT AN OBLIQUE ANGLE ON A PLANE PARALLEL FE SHIELD. THE ANGULAR DISTRIBUTION OF N VARIES WITH INCREASING WIDTH OF SHIELD AZIMUTHALLY SYM. WITH RESPECT TO NORMAL OF THE SHIELD. THE FORM OF THE DISTRIBUTION IS THEN IDENTICAL WITH THAT GENERATED AT NORMAL PASSAGE OF N BEAM THROUGH THE SHIELD.

UNCLASSIFIED

USSR

UDC: 621.373:535.06

DUBNISHCHEV, Yu. N., LOKHMATOV, A. I., KOSHCHHEYEV, L. N., STOLPOVSKIY, A. A.,
UTKIN, Ye. N.

"Measuring the Linear Velocity of Motion of a Body by Using the Optical
Doppler Effect"

Leningrad, Optika i Spektroskopiya, Vol 34, No 3, Mar 73, pp 587-588

Abstract: Shown in the figure is a diagram of a device developed at the Institute of Automation and Electrometry of the Academy of Sciences of the USSR, Siberian Department, for using the Doppler shift of light to measure local linear velocity. The device uses a cadmium laser on $0.44 \mu\text{m}$ with 5 mW of output power. A light beam from the laser 1 operating in the fundamental mode passes through iris 2 and is incident on beam splitter 3. One of the split beams passes through iris 4 and is focused by lens 5 onto the surface of disc 6 whose local linear velocity is to be measured. The disc revolves with angular velocity ω . The second split beam is focused by an identical lens 7 onto the surface of a polished glass plate 8 which reflects it through the same lens back to a photodividing plate where it acts as a reference beam, recombining with the signal beam scattered by

1/3

USSR

DUBNISHCHEV, Yu. N. et al., Optika i Spektroskopiya, Vol 34, No 3, Mar 73, pp 587-588

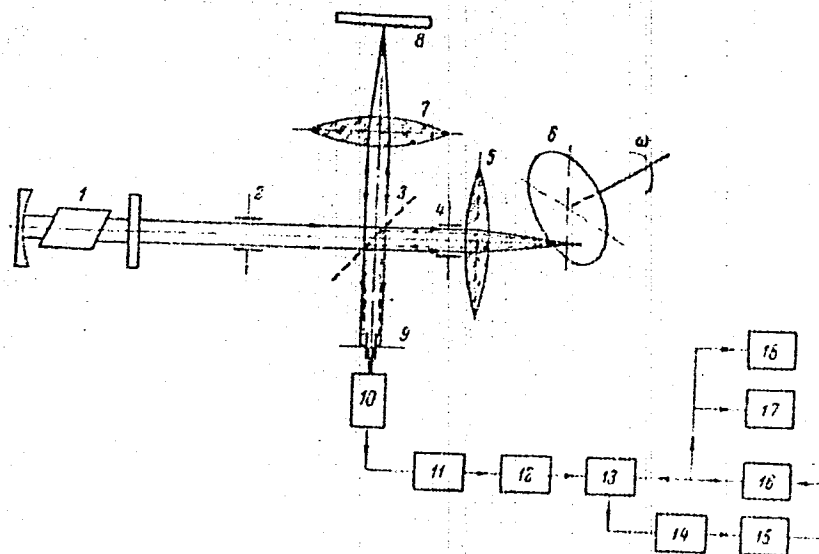
disc 6. The signal and reference beams are trimmed by iris 9 and interfere on the cathode of photomultiplier 10. The Doppler difference frequency from the load of this tube is sent through high-frequency filter 11 and clipper amplifier 12 to a tracking filter made up of phase detector 13, low-frequency filter 14, DC amplifier 15 and frequency-controlled oscillator 16. The signal from the oscillator is sent to spectrum analyzer 17 and digital frequency meter 18. The readings of the meter are proportional to the linear velocity of the disc in the region where the incident beam is focused. The Doppler spectrum of the signal can be analyzed on the spectrum analyzer. The proposed device has an accuracy of 0.2% and can be used for noncontact measurement of the linear velocity of mechanical motion in rolling mills, paper-making machines, etc.

2/3

- 58 -

USSR

DUBNISHCHEV, Yu. N. et al., Optika i Spektroskopiya, Vol 34, No 3, Mar 73, pp 587-588



USSR

UDC 621.375.82

DUBNISHCHEV, Yu. N., KORONKEVICH, V. P., SOBOLEV, V. S., STOLPOVSKIY, A. A.,
SENIN, A. G., UTKIN, Ye. N., VASILENKO, Yu. G., SHMOYLOV, N. F.

"Development of the Doppler Method for Measuring Flow Rate"

V sb. Konf. po avtomatiz. nauch. issled. na osnove primeneniya ETsVM, 1972
(Conference on the Automation of Scientific Research on the Basis of Com-
puter Applications, 1972 -- Collection of Works), Novosibirsk, 1972,
pp 63-70 (from RZh-Fizika, No 11, Nov 72, Abstract No 11D976)

Translation: A two-channel compensation circuit for a laser Doppler device
for measuring velocity is proposed. Use of this device makes it possible to
lower considerably the level of the low-frequency component of the signal,
which causes disturbance in processing the signal. The potential possibi-
lities of the method of electronic processing of a Doppler signal are con-
sidered theoretically from the aspect of the accuracy of the measurements.
The possibilities of the device are illustrated by an autocorrelation func-
tion for different average flow rates. A. I. Serbin.

1/1

- 27 -

USSR

B. Mathematical Statistics

UDC: 519.2

STOYANOV, Y. M.

"On Estimating Partially Observable Random Processes"

Math. balkan., 1972, 2, pp 235-250 (from RZh-Kibernetika, No 7, Jul 73, abstract No 7V185 by R. Liptser)

Translation: Let $(\theta_t, t \geq 0)$ be an unobservable Markov process such that

$$\frac{P(\theta_t \in U | \theta_s = x) - \chi_{t \in U}}{t-s} \rightarrow q(s, x, U), \quad t \downarrow s,$$

and $\xi = (\xi_t, t \geq 0)$ be an observable process with

$$d\xi_t = A(\theta_t, \xi_t, t) dt + B(\xi_t, t) dW_t,$$

where $(W_t, t \geq 0)$ is a Wiener process which is independent of the process $(\theta_t, t \geq 0)$.

With certain assumptions on $q(s, x, U)$, $A(\theta_t, \xi_t, t)$, $B(\xi_t, t)$ equations are derived for the a posteriori probabilities

$$P(\theta_t \in U | \xi_t^t), \quad P(\theta_s \in U | \xi_s^t), \quad s < t \text{ or } s > t.$$

USSR

STOYANOV, Y. M., Math. balkan., 1972, 2, pp 235-250

These equations are used in problems of optimum estimation (filtration, interpolation, extrapolation) of a Markov random process θ_t with respect to realization of the random process $\xi_s = (\xi_s, 0 \leq s \leq t)$.

2/2

- 9 -

USSR

UDC 669.018.2.4

MIKHEYEV, N. I., and STOLYAR, G. F., Novocherkassk Scientific Research
Institute of Permanent Magnets

"On the Action of Base Components and of Silicon in Magnico Alloys"

Moscow, Metallovedeniye 1 Termicheskaya Obrabotka Metallov, No 2, 1973,
pp 26-28

Abstract: A study was made of the effect of cobalt, nickel, copper, and aluminum on the temperature of the beginning high-coercive transformation ($\beta_2 \rightarrow \beta + \beta_2$ -decomposition) in magnico alloys of YuNDK24 type under conditions of continuous cooling. An alloy containing 24% Co, 14% Ni, 8% Al, 3% Cu, and the rest Fe served as the base. Various modifications of this alloy differing in the content of one of the components were investigated. The temperature dependence of beginning transformation on the content of individual elements was established. The effect of the hardening temperature on the magnetic properties of YuNDK24S and YuNDK24 alloys was investigated. Presented data demonstrate the possibility of successful magnetothermal processing of YuNDK24S alloys from all temperatures over 875°C. The use of lower hardening temperatures is of particular economic and technological interest

1/2

- 56 -

USSR

MIKHEYEV, N. I., and STOLYAR, G. F., Metallovedeniye i Termicheskaya Obrabotka Metallov, No 2, 1973, pp 26-28

in the series production of YuNDK24S alloys. Three figures, seven bibliographic references.

2/2

STOLYAR, L.P.

JPRS 55131
8 February 1972

UDC 621.313.12:538.4

TECHNICAL-ECONOMIC ANALYSIS OF A CLOSED-CYCLE
POWER PLANT WITH A NON-EQUILIBRIUM PLASMA
MHD GENERATOR

[Article* by D. Ya. Shuryavskiy, V. I. Kobasov, Ye. M. Sholkov, L. P. Stolyar, and V. N. Mikoshchichenskiy, Institute of High Temperatures, USSR Academy of Sciences, Moscow, Tsentralnyy Vysshiy Institut, Russian, Vol. 9, No. 6, November-December 1971, submitted 25 September 1970, pp 1254-1270]

The combination of a high-temperature gas-cooled reactor and a plasma MHDG (magnetohydrodynamic generator) may be one of the promising trends in the improvement of the technical and economic indices of a closed-cycle electric power plant by means of decreasing specific capital expenditures in the enlargement of the unit capacity of the power units and increasing the thermodynamic efficiency of the cycle. Since even promising gas-cooled reactors provide a comparatively low level (1500-1700°C) of the deceleration temperatures at the input to the MHDG, the development of the conductivity necessary for the effective operation of the generator is possible only in non-equilibrium ionization of the alkali additive in the inert gases. In this work, problems of the selection of the parameters of a closed-cycle power plant with a non-equilibrium MHDG are considered, and on the basis of design developments estimates of its economic indices are made.

1. Selection of a circuit and basic parameters for a closed-cycle plasma MHDG (magnetohydrodynamic generator). The application of a high-temperature gas-cooled reactor as a heat source in a plasma MHD cycle advances as the basic problem the costs of the parameters of the reactor and the MHD channel. On the one hand, the heat carrier (coolant) must provide effective heat removal in the active zone (core) of the reactor, for which it is necessary to have a high gas pressure. On the other hand, the coolant, as the working fluid of the MHDG, must have an adequately

*Materials prepared for reference [1] are the basis of this article.

- 1 -

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MHD

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SKVORTSOV, I. M., BUNTYAKOVA, N. A., STOLYARCHUK, A. A., and IVANOVA, N. I.,
Saratov University imeni N. G. Chernyshevskiy and Vinnitsa Medical Institute
imeni N. I. Pirogov

"Synthesis of 1-(furyl-2')- and 1-(5'-methylylfuryl-2')-2-dimethylaminoethanes
and Some Pharmacological Properties of the Hydrochlorides and Quaternary Salts
Derived From Them"

Moscow, Khimiko-Farmatsevticheskiy Zhurnal, No 8, 1972, pp 14-17

Abstract: A continuation of an earlier work describing the synthesis of
amines like 1-(furyl-2')-3-dimethylaminopropane is presented. The relationship
between the structure of the quaternary salts and hydrochlorides, derivatives
of tertiary furan amines, and their pharmacological properties are discussed.
In experiments on mice, all eight compounds studied briefly dilated the pupils,
lowered blood pressure, and slowed the coronary blood flow. Thus, the com-
pounds possess M-cholinomimetic activity manifested selectively against the
peripheral or central cholinoreactive structures.

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1/2 020 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--DOG AS A SPONTANEOUS CARRIER OF LAMBLIA AND PROBABLE SOURCE AND
VECTOR OF LAMBLIASIS IN NATURE -U-
AUTHOR-(02)-PADCHENKO, I.K., STOLYARCHUK, N.G.
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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RESULTS OF EXPERIMENTAL INVESTIGATIONS CARRIED OUT IN PUPPIES 1.5-4 MONTH OLD TESTIFY TO THE FACT THAT A DOG IS SUSCEPTIBLE TO BOTH SPONTANEOUS AND EXPERIMENTAL LAMBLIASIS EVOKED BY THE CYSTS OF DOG LAMBLIA CANIS AND HUMAN L. INTESTINALIS. EXPERIMENTAL INVASION CAUSED BY THE CYSTS OF L. INTESTINALIS ALSO ACTIVATES THE ASYMPTOMATIC SPONTANEOUS LAMBLIASIS IN DOGS. DURING SPONTANEOUS AND EXPERIMENTAL LAMBLIASIS IN DOGS, THE VEGETATIVE FORMS OF LAMBLIA ARE LOCALIZED IN VARIOUS AREAS OF DUODENUMS AND SMALL INTESTINES; WITH PARTICULARLY GREAT AMOUNT OF THEM BEING IN THE MIDDLE AREA OF SMALL INTESTINE. FACILITY: KYIEVSKIY NAUCHNO-ISSLEDOVATEL'SKIY INSTITUT EPIDEMIOLOGII, MIKROBIOLOGII I PARAZITOLOGII.

UNCLASSIFIED

USSR

UDC 537.32

KITS, I. I., STADNYK, B. I., SOLYANYK, L. M., STOLYARCHUK, P. G.

"The Possibility of Using VR-10/20 Thermocouples in Corrosive Substances"

Moscow, Teplofizika Vysokikh Temperatur, Vol 11, No 1, Jan-Feb 73, pp 150-153.

Abstract: The influence of various quantities of inert gas on the thermoelectric properties of the VR-10/20 thermocouple is experimentally studied. Data are presented on the instability of VR-5, VR-10 and VR-20 tungsten-rhenium thermocouples in neutral media; the influence of the inert gas flow rate on the indications of the thermocouple is studied and the optimal value, not influencing the indications of the thermocouple, is established as a function of temperature.

1/1

- 156 -

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USSR

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STOLYAREVSKIY, N. A., Engineer, Ust'-Kamenogorsk Lead and Zinc Combine, and
BOGDANOV, R. A., Engineer, Ministry of Non-Ferrous Metallurgy USSR

"Experience in the Use of Silicon Current Transformers"

Moscow, Pri-yshlennaya Energetika (Industrial Power Engineering), No 2, 1970,
pp 18-21

Translation: A description is given of the modernization of working mercury transforming substations at the Ust'-Kamenogorsk Lead and Zinc Combine by replacing the mercury-arc rectifiers with high-capacity silicon transformers. During the period of this substitution, part of the mercury-arc rectifiers operated in parallel with the silicon ones. The circuits of the units are presented.
(3 illustrations)

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USSR

UDC 535

ANISIMOV, V. YA., SOTSKIY, V. A., and STOLYAROV, A. D.

"Form of the Distribution Function of Coherent Fields"

Minsk, Doklady Akademii Nauk BSSR, Vol 14, No 12, 70, pp 1075-1077

Abstract: Based on the general properties of the distribution function, this article attempts to establish its form for random fields, coherent in the first and subsequent orders. The electromagnetic field is described by an analytical signal which represents a random function of space and time.

A formula is given for the combined density distribution of the field at two space-time points, and the basic requirements are imposed that it be a real, positive function and that the integration be carried out over both complex planes of the variable V_j .

1/2

- 98 -

USSR

ANISIMOV, V. YA., et al., Doklady Akademii Nauk BSSR, Vol 14, No 12, 70, pp 1075-1077

It is further given that the field must be coherent in the first order for any pairs of points 1 and 2. By combining the first two numbered equations an integral expression is found which satisfies the distribution density. In essence this equation is simply a limiting case of the Bunyakowski-Schwarz inequality. It is ultimately found that the distribution function f_2 for stationary fields, coherent in the first order, has the form of:

$$f_1 = \frac{1}{\pi \sigma_1^2 \sigma_2^2} C \left(\frac{|V_1|}{\sigma_1} \right) \delta^{(2)} \left(\frac{V_1}{\sigma_1} - \frac{V_2}{\sigma_2} e^{-i\phi_{12}} \right).$$

This equation can easily be generalized to the case of an n-dimensional distribution density. Unlike equations derived in other articles, these show not only sufficiency, which is obvious, but necessity as well. The conclusion is reached that if the field is coherent in the first and second orders, then it must be coherent in all orders.

2/2

USSR

UDC 535

STOLYAROV, A. K., PROKHOROV, N. G.

"Two-Coordinate Deflection of Light by a Bragg Ultrasonic Cell"

V sb. Kvant. elektronika (Quantum Electronics -- Collection of Works), No. 1, Moscow, 1971, pp 149-151 (from RZh-Fizika, No 7, Jul 71, Abstract No 7D934)

Translation: It is shown that two-coordinate deflection of light is possible under Bragg diffraction on two ultrasonic beams propagating in mutually perpendicular directions in the same crystal. Such a system is calculated and the results of an experimental study of it are given. The working medium was α -iodous acid which has a high acousto-optical Q. Authors abstract.

1/1

USSR

UDC: 621.372.852.2

STOLYAROV, A. K., NAUMOV, I. A.

"Problems of Optimum Design of Phase Shifters Based on Ferrites With Rectangular Hysteresis Loop"

V sb. Antenny (Antennas--collection of works), Vyp. 8, Moscow, "Svyaz'", 1970, pp 65-72 (from RZh-Radiotekhnika, No 7, Jul 70, Abstract No 7B175)

Translation: The paper gives the results of calculation of a nonmutual waveguide phase shifter represented as a ferrite-dielectric waveguide magnetized by an annular magnetic field; the ferrite has an arbitrary thickness. A strict solution is found for the problem of propagation of an electromagnetic wave along a two-layer dielectric rod, and the nonmutual effect is found by the perturbation method. Six illustrations, bibliography of four titles. Resumé.

1/1

USSR

UDC 621.372.832.8(088.8)

SHIMKO, A. A., SHAKHGEDANOV, V. N., STOLYAROV, A. K., VOILMAN, V. I.

"Waveguide γ -Circulator"

USSR Author's Certificate No 252428, Filed 17 May 68, Published 12 Feb 70
(from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9B136F)

Translation: The proposed circulator is executed from a symmetrical waveguide T-junction in the center of which there is a magnetized ferrite element perpendicular to the wide wall of the waveguide. The latter is surrounded by one or several metallic cylinders arranged symmetrically with respect to the axis of the T-junction on the wide walls of the waveguide. The ferrite element together with the metallic cylinders forms a low Q-factor resonator tuned to the first harmonic of the electric field (the resonator for the TM_{110} type wave). This field component is amplified and it creates favorable conditions for excitation of electromagnetic energy in the open arm of the circulator. The matching of the input and output channels of the circulator is improved, and this means the standing wave coefficient is reduced and the decoupling is increased. The circulators in the 3-cm range have 25 decibel decoupling, 0.5 decibel losses, a standing wave coefficient < 1.1 in the frequency band up to 1,000 megahertz. These parameters are retained in the band on the order of 600 megahertz on variation of the

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SHIMKO, A. A., et al., USSR Author's Certificate No 252428, Filed 17 May 68,
Published 12 Feb 70 (from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9B136P)

ambient temperature from -10 to +50° C even when using an ordinary ferrite.
It is noted that the circulator design is simple to manufacture and tune,
and it insures identity of the parameters during series manufacture. There
are three illustrations.

2/2

USSR

UDC 621.372.85

STOLYAROV, A. K., SMIRNOV, V. S., and NAUMOV, I. A.

"Microband Ferrite Units for Integrated Super-High Frequency Circuits"

Elektron. tekhnika. Nauch.-tekhn. sb. Ferrit. tekhn. (Electronics Technology. Scientific-Technical Collection of Articles. Ferrite Technology), 1971, vyp. 4 (31), pp 60-64 (from RZh-Radiotekhnika, No 11, Nov 72, Abstract No 11 B153)

Translation: The authors describe ferrite, super-high frequency, microband module-circulators, phase inverters, rectifiers, and amplifying circuits with circulators designed for use in integrated and hybrid integrated super-high frequency circuits. Resume.

1/1

- 19 -